



1
SEQUENCE LISTING

<1> DIVERSA CORPORATION
CALLEN, Walter
MATHUR, Eric

<120> ENZYMES HAVING HIGH TEMPERATURE POLYMERASE ACTIVITY AND METHODS OF USE THEREOF

<130> DIVER1350-2

<140> US 09/656,309

<141> 2000-09-06

<160> 2

<170> PatentIn version 3.0

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<211> 2412

<212> DNA

<213> Pyrolobus fumarius

<220>

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Gly Lys Glu Pro Gln Val Ile Ile Trp Gly Ile Ala Glu Asn Gly Glu	
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Arg Val Val Leu Ile Asp Arg Ser Phe Arg Pro Tyr Phe Tyr Ala Leu	
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ttg agt agg cca aag agc ccg att ata ggt gta gag gat gac aag agg	240
Leu Ser Arg Pro Lys Ser Pro Ile Ile Gly Val Glu Asp Asp Lys Arg	
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aag tac ttc ggg agg cct cgt agg gtc tta cgt att cgc acc gtg cta	288
Lys Tyr Phe Gly Arg Pro Arg Arg Val Leu Arg Ile Arg Thr Val Leu	
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ccc gag gct gtt agg gag tat cgc gaa ctc gta aag aac gtt gat ggt	336
Pro Glu Ala Val Arg Glu Tyr Arg Glu Leu Val Lys Asn Val Asp Gly	
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ggt gag gat gtt cta gag gcg gat ata cgc ttc gct atg cgc tat ctc	384
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Ile	Asp	His	Asp	Leu	Phe	Pro	Phe	Thr	Trp	Tyr	Arg	Val	Glu	Ala	Glu	
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ccc	ctc	gag	aac	aag	atg	ggc	ttc	cgt	gtc	gac	aag	gta	tac	ctg	gtt	480
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Lys	Ser	Arg	Pro	Glu	Pro	Leu	Tyr	Gly	Glu	Ala	Leu	Ala	Pro	Thr	Lys	
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ctt	ccc	gat	ctt	agg	ata	ctc	gcg	ttc	gat	att	gaa	gtt	tat	agc	aag	576
Leu	Pro	Asp	Leu	Arg	Ile	Leu	Ala	Phe	Asp	Ile	Glu	Val	Tyr	Ser	Lys	
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Gln	Gly	Ser	Pro	Arg	Pro	Glu	Arg	Asp	Pro	Val	Ile	Val	Ile	Ala	Val	
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Pro	Gly	Arg	Leu	Asn	Val	Asp	Leu	Tyr	Asp	Tyr	Ala	Glu	Glu	Met	Pro	
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gct atc cag ttg tcg tac gta aca ggt ctc cca cta gac cag gta ggt Ala Ile Gln Leu Ser Tyr Val Thr Gly Leu Pro Leu Asp Gln Val Gly 370 375 380			1152
gcg atg agt gtt ggc ttt cga ctt gaa tgg tac ctg ata cgc gcg gcg Ala Met Ser Val Gly Phe Arg Leu Glu Trp Tyr Leu Ile Arg Ala Ala 385 390 395 400			1200
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gtc agg aag att gtg aaa gag ttg gag gag ggc aag gtt ccc ata gag Val Arg Lys Ile Val Lys Glu Leu Glu Glu Gly Lys Val Pro Ile Glu 675 680 685	2064
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cct agc cag ata gac gtg acc tac tat gtt gac cac caa atc atc ccg Pro Ser Gln Ile Asp Val Thr Tyr Tyr Val Asp His Gln Ile Ile Pro 755 760 765	2304
gct gca ttg aga ata ctg ggc tac ttt ggc atc acc gag aag aag ctg Ala Ala Leu Arg Ile Leu Gly Tyr Phe Gly Ile Thr Glu Lys Lys Leu 770 775 780	2352
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35 40 45

Leu Ala Pro Gly Ala Asp Pro Lys Gln Val Ala Gln Arg Ile Arg Ala
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Leu Ser Arg Pro Lys Ser Pro Ile Ile Gly Val Glu Asp Asp Lys Arg
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Lys Tyr Phe Gly Arg Pro Arg Arg Val Leu Arg Ile Arg Thr Val Leu
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Pro Glu Ala Val Arg Glu Tyr Arg Glu Leu Val Lys Asn Val Asp Gly
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Val Glu Asp Val Leu Glu Ala Asp Ile Arg Phe Ala Met Arg Tyr Leu
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Ile Asp His Asp Leu Phe Pro Phe Thr Trp Tyr Arg Val Glu Ala Glu
130 135 140

Pro Leu Glu Asn Lys Met Gly Phe Arg Val Asp Lys Val Tyr Leu Val
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Lys Ser Arg Pro Glu Pro Leu Tyr Gly Glu Ala Leu Ala Pro Thr Lys
165 170 175

Leu Pro Asp Leu Arg Ile Leu Ala Phe Asp Ile Glu Val Tyr Ser Lys

180

185

190

Gln Gly Ser Pro Arg Pro Glu Arg Asp Pro Val Ile Val Ile Ala Val
195 200 205

Lys Thr Asp Asp Gly Asp Glu Val Leu Phe Ile Ala Glu Gly Lys Asp
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Asp Arg Lys Pro Ile Arg Glu Phe Val Glu Tyr Val Lys Arg Tyr Asp
225 230 235 240

Pro Asp Ile Ile Val Gly Tyr Asn Asn Asn His Phe Asp Trp Pro Tyr
245 250 255

Leu Leu Arg Arg Ala Arg Ile Leu Gly Ile Lys Leu Asp Val Thr Arg
260 265 270

Arg Val Gly Ala Glu Pro Thr Thr Ser Val His Gly His Val Ser Val
275 280 285

Pro Gly Arg Leu Asn Val Asp Leu Tyr Asp Tyr Ala Glu Glu Met Pro
290 295 300

Glu Ile Lys Ile Lys Ser Leu Glu Glu Val Ala Glu Tyr Leu Gly Val
305 310 315 320

Met Lys Lys Ser Glu Arg Val Ile Ile Asn Trp Trp Glu Ile Pro Asp
325 330 335

Tyr Trp Asp Asp Pro Lys Lys Arg Pro Leu Leu Leu Gln Tyr Ala Arg
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Asp Asp Val Arg Ala Thr Tyr Gly Leu Ala Glu Lys Ile Leu Pro Phe
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Ala Met Ser Val Gly Phe Arg Leu Glu Trp Tyr Leu Ile Arg Ala Ala
385 390 395 400

Phe Lys Met Lys Glu Leu Val Pro Asn Arg Val Glu Arg Pro Glu Glu
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Thr Tyr Arg Gly Ala Ile Val Leu Glu Pro Leu Arg Gly Val His Glu
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Lys Tyr Asn Val Gly Pro Asp Thr Leu Val Arg Pro Gly Glu Lys Cys
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Ala Asn Ala Ser Tyr Gly Tyr Met Gly Trp Ser Gly Ala Arg Trp Tyr
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Cys Arg Glu Cys Ala Lys Ala Val Thr Ala Trp Gly Arg His Leu Ile
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Glu Lys Val Tyr Lys Arg Leu Phe Phe Thr Glu Ala Lys Lys Arg Tyr
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Val Arg Gly Asp Trp Cys Glu Leu Ala Lys Glu Val Gln Thr Lys Val
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Val Arg Lys Ile Val Lys Glu Leu Glu Glu Gly Lys Val Pro Ile Glu
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Lys Leu Val Ile Trp Lys Thr Leu Ser Lys Arg Leu Glu Glu Tyr Thr
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Gly Gly Arg Ile Ser Gln Arg Ala Trp Pro Tyr Phe Met Val Lys Asp
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Pro Ser Gln Ile Asp Val Thr Tyr Tyr Val Asp His Gln Ile Ile Pro
 755 760 765

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 770 775 780

Lys Ala Ser Ala Thr Gly Gln Lys Thr Leu Phe Asp Phe Leu Ala Lys
 785 790 795 800

Lys Ser Lys